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Title: Harnessing in vitro evolution to discover antibodies for therapeutic and diagnostic use

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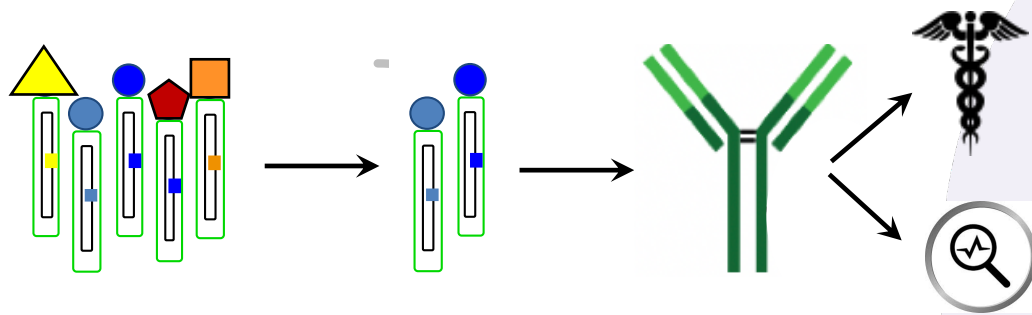
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Harnessing in vitro evolution to discover antibodies for therapeutic and diagnostic use



Mietta Lillo B-10

May 5th 2021

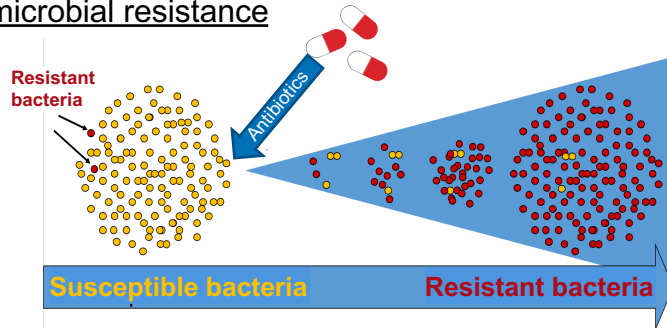
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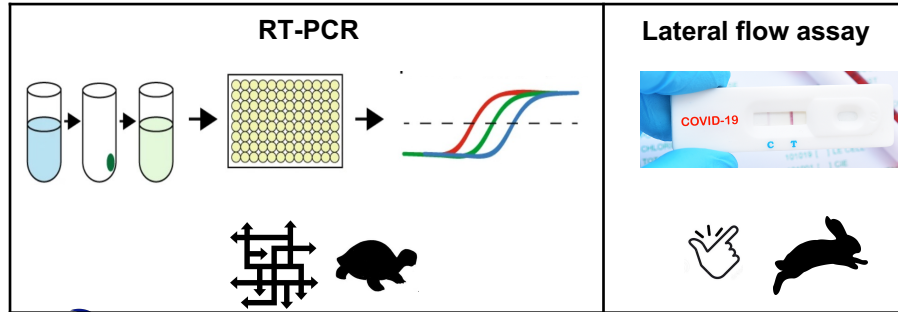
We can develop alternative antimicrobials and high-quality point of care diagnostics

The problems

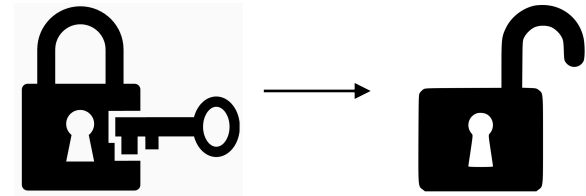
Antimicrobial resistance



High quality diagnostics are complex, expensive and slow

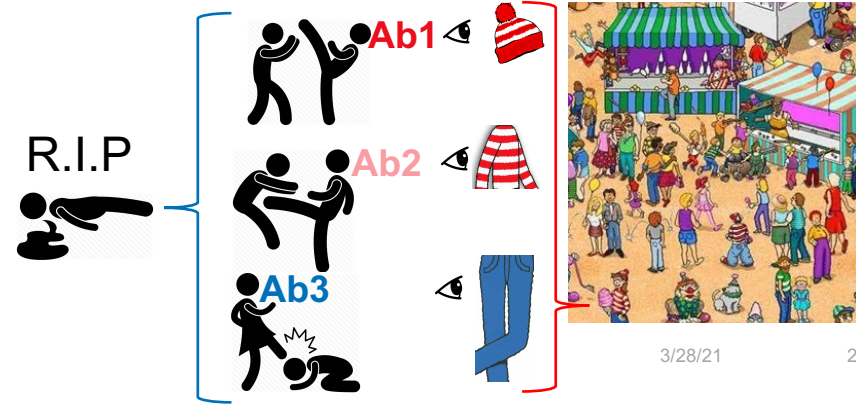


Our solution: highly specific affinity reagents



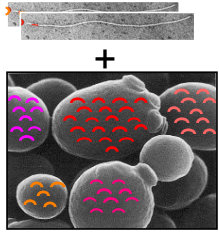
Human antibody *cocktails* can be effective

therapeutics and diagnostics

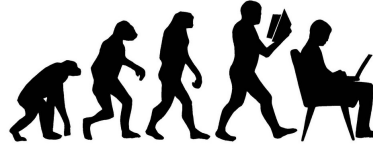


Our selection of affinity reagents is inspired by nature

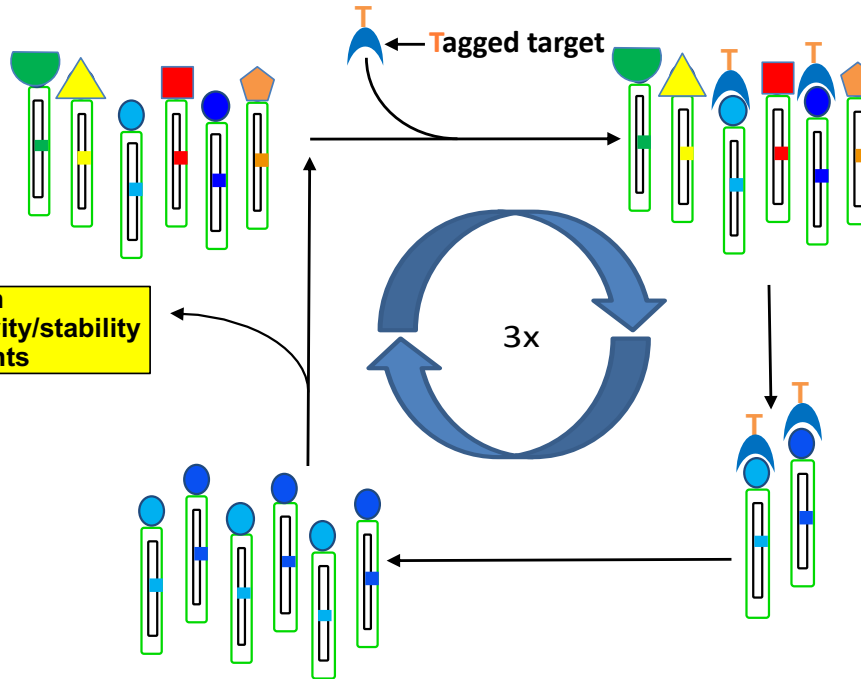
Display organisms



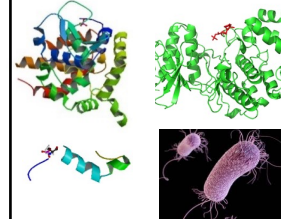
Natural evolution



In vitro evolution



Selection targets



Features of selection process	Animal	Phage + Yeast
Rapid path to human antibodies	●	●
Real time monitoring of selection	●	●
<u>Specificity tuning</u>	●	●
<u>Stability selection</u>	●	●
Full length antibody	●	●
Multiple affinity reagent formats	●	●
<u>Toxic molecules can be targeted</u>	●	●



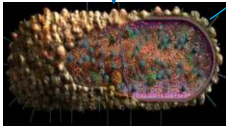
Recently selected antibody cocktails have enabled:

Y. pestis killing by selective delivery of radioactivity

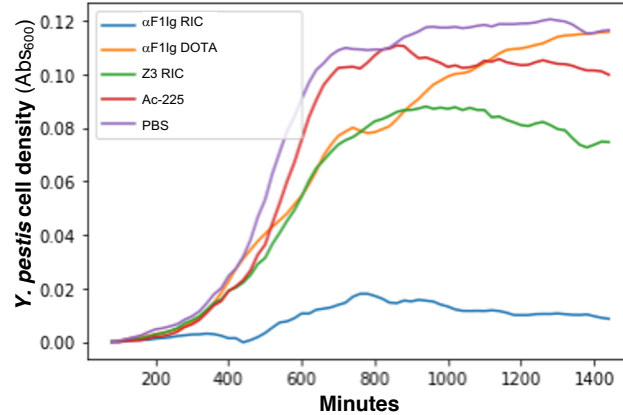
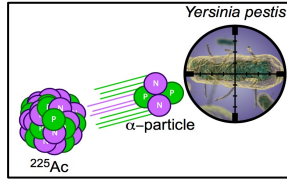


Selection target:

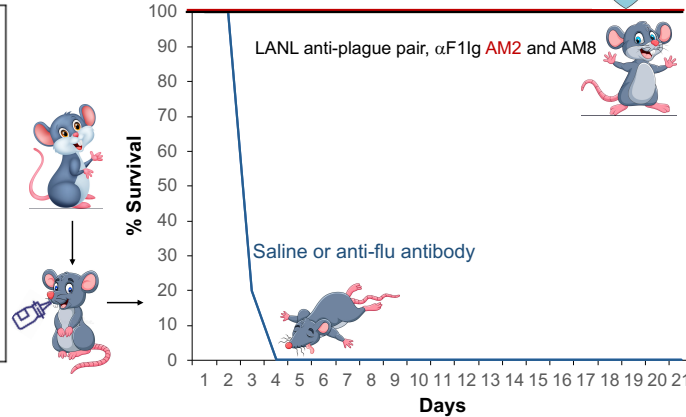
Spike protein



Y. pestis



In vivo protection against plague



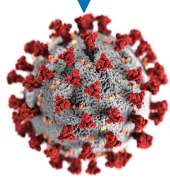
Sensitive and accurate detection of SARS-CoV 2 spike protein and whole virus



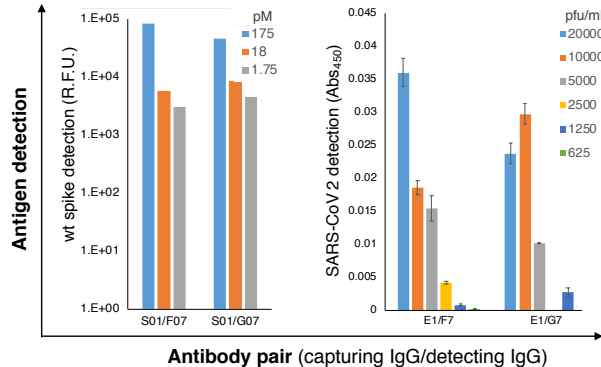
Sandia National Laboratories

Selection target:

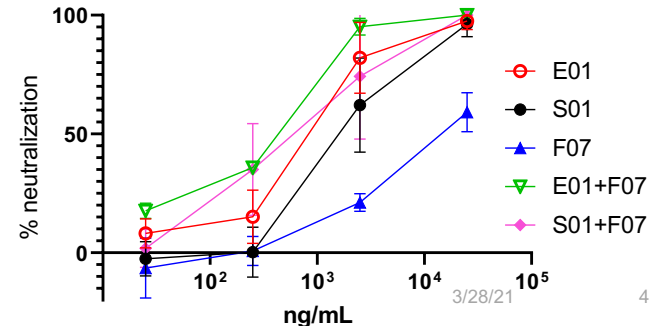
Spike protein



SARS-CoV 2

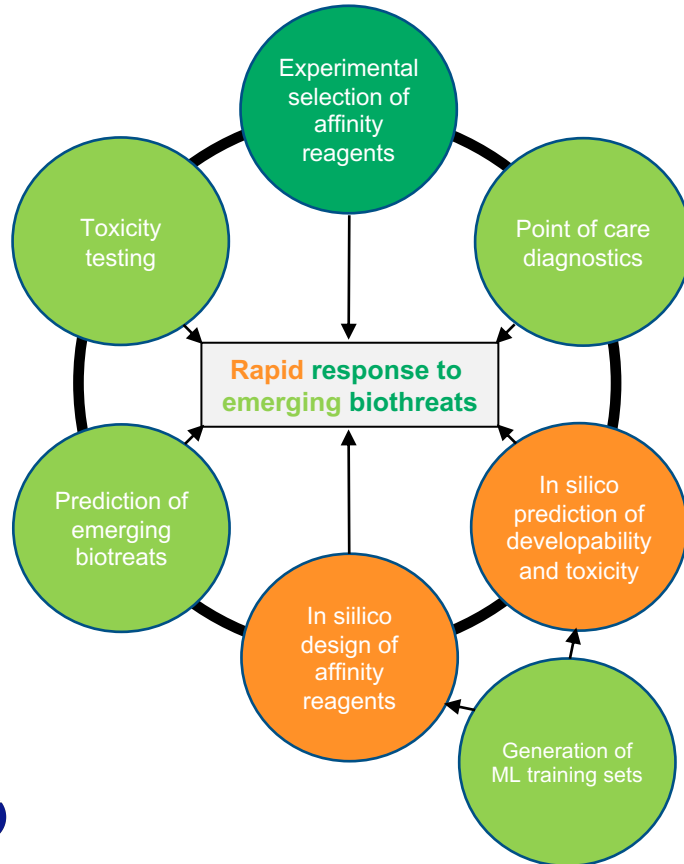


In vitro neutralization of viral infection



We are contributing to efficient response to biothreats

Current status and the future



Sponsors

